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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Daryl J. Nelson

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7590

10/26/2006

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EXAMINER

CHANG, YEAN HSI

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/617,540

Applicant(s)

NELSON, DARYL J.

Examiner

Yean-Hsi Chang

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19, 20, 23-26 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 16, 19 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 14, 17 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 13 is objected to because of the following informalities: The “the first fan” and “the second fan” on lines 14 and 15 lack antecedent bases. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bausch et al. (US 6,191,546 B1).

Regarding claims 1 and 8, Bausch teaches a method comprising: receiving data from a first sensor (42) for sensing a temperature of a high thermal dissipating object (20), and a second sensor (82) for sensing an air temperature of a system (an environmental temperature is considered as an air temperature, see col. 5, lines 21-24), entering a first stage of cooling or an intermediate stage of cooling in response to

conditions as detected by first and second sensors (changing speed of the fan including stopping; see figs. 2, 3A and 3C, also col. 5, line 36 through col. 6, line 29).

Bausch fails to teach a first stage, a first set of conditions, an intermediary stage and a second set of conditions. However, the conditions of either first stage or an intermediary stage are a set of temperature readings as described in [0040] and [0045] of the specification of the application. The temperature sensors of Bausch provide temperature readings as well as explained in col. 5, line 15 through col. 6, line 29 of specification of Busch.

Regarding claims 2-7 and 9-12, Bausch further teaches wherein the at least one fan directs airflow towards a main section of a heat sink (50) that is in contact with the high thermal dissipating object (see fig. 1) (claim 2); wherein the conditions detected by the first and second sensors that cause said entering the first stage, the intermediary stage, and the final stage depend on detected temperatures comparing with a reference temperature (see col. 5, lines 15-25) (claims 3-5 and 9-11); wherein the first and second fans are controlled separately (as shown in fig. 2), they may be operated simultaneously (claims 6-7); and wherein the high thermal dissipating object comprises a CPU (see col. 9, lines 61-62) (claim 12).

4. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bausch et al.

Bausch teaches a machine-readable medium (61) having stored thereon data representing sequences of instructions (see col. 4, line 64 through col. 5, line 4), the

sequences of instructions which, when executed by a processor (60), result in: receiving data from a first sensor (42), the first sensor communicatively coupled to a high thermal dissipating object (20, a CPU of the system) in a system (fig. 2) to sense a temperature of the object, receiving data from a second sensor (82), the second sensor communicatively coupled to the system to sense an air temperature of the system (an environmental temperature is considered as an air temperature, see col. 5, lines 21-24), enter a first stage, an intermediary stage or a final stage by causing at least one fan in the system to operate in response to conditions as detected by the first and second sensors (see col. 5, lines 38-50) (claims 23-26).

Bausch fails to teach a first stage of cooling, a first set of conditions, an intermediary stage of cooling, a second set of conditions, a final stage of cooling, and a third set of conditions. However, the conditions of either first stage of cooling, an intermediary stage of cooling or a final stage of cooling are a set of temperature readings as described in [0040], [0045] and [0047] of the specification of the application. The temperature sensors of Bausch provide temperature readings as well as explained in col. 5, line 15 through col. 6, line 29 of specification of Busch.

5. Claims 13, 15-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bausch et al. in view of Chang (US 7,111,667 B2).

Regarding claim 13, Bausch teaches a system (fig. 2) comprising: an object (20) having high thermal dissipating properties (high thermal dissipating object), a first sensor (40 or 42) communicatively coupled to the high thermal dissipating object to

sense a temperature of the high thermal dissipating object, at least one second sensor (80 or 82) communicatively coupled to the system to sense an air temperature of the system (an environmental temperature is considered as an air temperature, see col. 5, lines 21-24), a heat sink (50) in adjacent contact with the high thermal dissipating object (fig. 1), the heat sink having a main section located nearest the high thermal dissipating object (fig. 1), a first fan (30), a second fan (32), and a memory (61) to store a computer program to receive temperature data from the first sensor and the at least one second sensor and to vary the speeds of the first fan and the second fan based on the received temperature data (see figs. 2, 3A and 3C, also col. 5, lines 38-50).

Bausch fails to teach the heat sink including an extended section farthest from the high thermal dissipating object.

Chang teaches a heat sink (21 and 22, fig. 8) including a main section (22) and an extended section (21) farthest from a high thermal dissipating object (12), airflow towards the main section directed by a first fan (32), and airflow towards the extended section directed by a second fan (31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the heat sink of Bausch with the heat sink taught by Chang for better cooling efficiency.

Regarding claims 15-16, Bausch in view of Chang further teaches the first fan being co-planar with the second fan (fig. 1 of Chang) (claim 15); wherein the heat sink comprises fins on the main section and the extended section (fig. 1 of Chang) (claims 16); and wherein the fins on the main section of the heat sink are spaced about equally,

and about the same size as the fins on the extended section of the heat sink (also see fig. 1 of Chang) (claims 19).

***Allowable Subject Matter***

6. The indicated allowability of claim 19 is withdrawn in view of the newly discovered reference(s) to Chang. Rejections based on the newly cited reference(s) follow. There would be no inconvenience since claim 19 has not been rewritten as independent claim and the claim 13, from which it depends, has been amended with new issues.

7. Claim 20 is allowed.

8. Claims 14 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The best prior art of record, Bausch et al. (US 6,191,546 B1), Chang (US 7,111,667 B2), and Cromwell (US 5,926,370), taken alone or in combination, fails to teach or fairly suggest a system comprising in addition to other limitations, at least: a first sensor communicatively coupled to a high thermal dissipating object, one of at least one second sensor being located in close proximity to a first fan, and a second of the at least one second sensor being located in close proximity to a second fan as set forth in claim 14; and fins on a main section of a heat sink being denser than the fins on the

extended section of the heat sink as set forth in claim 17; and fins on the extended section of the heat sink being twice the spacing as the fins on the main section as set forth in claim 20. Claim 31 is the dependent claim from claim 17.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 13 and 15-16 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments with respect to claims 1-12 and 23-26 filed 10/11/2006 have been fully considered but they are not persuasive. Applicant argues that the temperature sensor 82 of reference Bausch senses the temperature of heat dissipation structure 50, not an air temperature as claimed. The temperature sensor 82 as disclosed in col. 5, lines 21-24 of reference Bausch, may sense the air temperature of the system.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Correspondence***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yean-Hsi Chang whose telephone number is (571) 272-2038. The examiner can normally be reached on 07:30 - 16:00, Monday through Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the Art Unit phone number is (571) 272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system,

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see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8558.

Yean-Hsi Chang  
Primary Examiner  
Art Unit: 2835  
October 25, 2006



YEAN-HSI CHANG  
PRIMARY EXAMINER